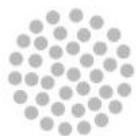**Wireless Innovation Forum**

SDR as an Enabling Technology in Defence Programs : an Industry Perspective
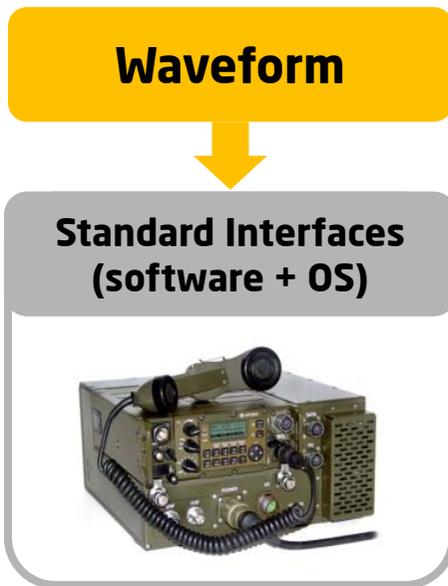
Madrid, 23 May 2018

indra

Challenge

How to include SDR capabilities for tactical communications in an operational fielded platform, considering legacy equipment and modernization through new waveform developments ?

Software Defined Radio Technology...

Waveform

↓

Standard Interfaces (software + OS)

SDR Radio

- **Improves the tactical communications interoperability**: different radios, same waveform

- **To re-use the same communications software** for different types of radio: **portability**

- **Simplifies the life cycle of the radio equipment**: maintenance and upgrade.

- **To agilize the development of new types of communication**, separating radio equipment (HW) from waveform (SW)

Opportunities created by SDR

Sovereignty in Tactical Communications

Interoperability between Systems

Logistics and Maintenance

Innovation in Communications

Opportunities created by SDR

Sovereignty in Tactical Communications

Control over some key elements of the radio: crypto module and waveform

National Waveforms

"Nationalization" of Radios

National Security Certification

Interoperability between Systems

Coalition Waveforms

International Cooperation

Common / Joint Repositories

WBWF and NBWF

Logistics and Maintenance

"Black Box" vs "White Box" models

Independent Evolutions HW vs. SW

Compatibility with legacy radios

New maintenance models

Innovation in Communications

R&D Risks Reduction

Emerging Technologies

New Waveforms

New Roles: WF Configurator

Opportunities created by SDR in Spain

Sovereignty in Tactical Communications	Interoperability between Systems

SDR allows improving sovereignty in communication by using **third party radios** and controlling three key elements:

- The Waveform software.

- The Crypto Module.

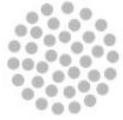- The applications of the radio operational environment.

Acquiring a **SDR capability** is not only purchasing SDR equipment, but also it is needed:

- To verify its compliancy with a known SDR standard (such as ESSOR Architecture).

- The availability of a SDR Development Environment.

- A cooperation agreement with the Radio Supplier.

Conclusions

- SDR is a technical solution to improve National sovereignty in tactical communications and enable interoperability in coalition missions.

- In operational platforms today, current communication needs require a system-of-systems approach.

- VCR 8x8 project is the main initiative to improve Spanish Army's capabilities for 2035 and also an example of this demanding scenario: the vehicle includes 7 types of radio tactical comms systems to provide data and voice services to the crew in a seamless way.

- Therefore, incorporating SDR to these systems is not just "adding boxes" to the picture: it is necessary to consider life cycle requirements from a system viewpoint, including compatibility solutions with legacy comms and future developments.

- SDR solutions have been incorporated to the VCR 8x8 design, thus becoming the first Spanish operational platform with state-of-the-art SDR-based radios.